

II. REMARKS

The basic idea of the present invention is to make it possible to measure the matching of an antenna in a device by measuring the power reflected from the antenna (page 7, lines 21 to 23), by measuring the distance from an obstacle in the vicinity of the antenna (page 12, lines 29 to 32) or by observing the position of the keypad cover of a mobile station (page 13, lines 28 to 38). Consequently, the invention is based on the idea that if the antenna matching is poor, less power is radiated from the antenna and similarly, more power is reflected back. Because the quality of the antenna matching can be changed by external factors to a great extent, the invention provides a possibility to match the antenna to the respective environment in such a way that as much of the power of the antenna driving electronics as possible is made to radiate from the antenna. As a result, for example, the power consumption of the device can be reduced (page 4, lines 20 to 31).

Sadahiro discloses a variable directivity antenna and method of controlling such an antenna. The invention is applicable to a two-element Yagi antenna (abstract). Sadahiro's patent aims at solving the problem where the abrupt reductions in field intensities normally have an adverse effect on the performance of an antenna configuration (column 2, lines 52 to 62). Thus, even if the field intensity at each received position is abruptly reduced due to the influence of a reflected wave and an obstacle, an extreme reduction in received level can be avoided (column 5, lines 20 to 23). According to Sadahiro, there are two antennas disposed in parallel at a small distance from each other (column 7, lines 23 to 25). Further, according to Sadahiro's invention, the second antenna can be used either as a reflector or a

director (column 7, lines 53 to 59) so that the field intensity in the antenna configuration does not drop too much (column 9, lines 16 to 37).

According to another embodiment of Sadahiro, the obstacles in the vicinity of the device can be detected so that the directivity is set so as to be directed in the direction opposite to the obstacle (column 10, lines 50 to 52). The obstacle sensor uses an obstacle sensor such as an infrared ray sensor or the like (column 11, lines 3 to 4).

First of all, Sadahiro deals with Yagi antennas, which are not well suitable to be used in mobile phones because of their large size. Secondly, Sadahiro does not disclose a method for matching an antenna so that as much power as possible is radiated from the antenna. Sadahiro is only applicable to an antenna configuration with at least two antenna elements (it is not known whether it works with more antenna elements, possibly after modifications). Sadahiro proposes that an electrical length of a parasitic antenna of a paired two-element Yagi antenna is varied to change antenna directivity.

As far as the second claim is concerned, it is new and inventive in the light of Sadahiro's patent. In column 7, lines 34-36, it is said that the impedances of the two conductors (antenna elements) have to match so that the other conductor determines the impedance. There is no hint that the antenna is matched so that as much power as possible is radiated from the antenna. Column 11 teaches how to change the directivity of an antenna so that the directivity is turned in the direction opposite to that of the obstacle.

All of the independent claims recite the antenna matching concept which is not in Sadahiro. Thus the rejection of claims 2,5,12,16,17 and 20 under 35 USC 102 on this reference should be withdrawn.

Further, since this concept is not suggested by Sadahiro, these claims are unobvious over it.

Terk merely discloses an adjustable television antenna. Thus combining it with Sadahiro does not result in the present invention since the matching concept is still missing.

Hence the rejection of claims 8 and 18 under 35 USC 103 on this combination of references should be withdrawn.

In Tamura, it was found out that the matching changes when the foldable casing is moved from one position to another position (column 1, lines 65 to 68, column 2, lines 1 and 2, and column 2, lines 34 to 39). In Tamura, the position of the foldable casing is investigated and the antenna matching is changed according to this position.

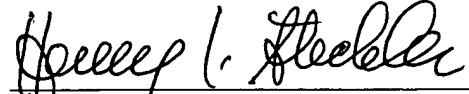
Thus combining it with Sadahiro does not result in the present invention. Hence the rejection of claims 9, 15, 19 and 21 under 35 USC 103 on this combination should be withdrawn.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should

any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,


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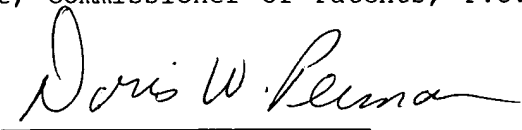
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